

**Application for Experimental Authorization**  
**Courtney Aviation**  
**File No. 0543 -EX- CN -2022**  
**May 18, 2022**  
**Narrative Explanation of Operation and Frequency Coordination Exhibit**

This is an application for a Part 5 Experimental Authorization on behalf of Courtney Aviation, an FAA-approved Part 135 Air Taxi Carrier that operates under contract with the California Department of Forestry and Fire Protection (Cal Fire) and the United States Forest Service (USFS) in support of wildland firefighting in the Western United States, and specifically in the States of California, Oregon, Washington, Arizona, Nevada, Utah, Montana, Idaho, Wyoming, Colorado and New Mexico.

Courtney Aviation is in the process of developing a video and data downlink system for use in enhanced air response and aerial reconnaissance during the attack phase of wildland firefighting from aircraft in the Western part of the United States. Courtney Aviation acts as the air tactical group supervisor above the fire and coordinates the response. Part of this response plan involves aircraft conducting aerial reconnaissance using onboard video cameras of various types to gather information about the fire. Courtney Aviation also performs an intel-gathering role for the USFS (NIROPS) and Cal Fire, gathering fire location data to create fire perimeter maps. The video and map data from those camera sensors is downlinked to the ground using an onboard transceiver, either directly to a ground receive station or via linked, portable mountaintop repeaters (in cases where line-of-sight between the aircraft and the ground station command post receiving the video is potentially shielded by terrain in a given area).

The transmitters, amplifiers and repeaters proposed for testing of this system are capable of operating in the bands 2025-2110 MHz, 2395-2450 MHz and 2450-2483.5 MHz, and testing will determine whether the system is workable in those bands. The Transceiver is a Mesh network TCP/IP Multi-in, Multi-out (MIMO) transceiver. The bandwidth is variable, at 5, 10, and 20 MHz. Onboard aircraft amplifiers have a maximum output of 12 watts. Antennas are omnidirectional aboard the aircraft at 12 dBi gain, but the ground repeaters might use Flat Plate antennas at 12-16 dBi gain.

Maximum transmission distance is anticipated to be 60 miles. The proposed mobile downlinking of broadband video will occur typically in rural or exurban areas and is unlikely to be interfered with by, or to interfere with, any broadcast auxiliary or LTTS applications. All of the proposed operation will be fully coordinated during the test period with the Society of Broadcast Engineers frequency coordinators in any potentially affected market, and with coordinators of the Amateur Radio service, so that interference is avoided in advance. Due to the geographic area of deployment of this system, it is not anticipated that there will be any interference to or from terrestrial BAS, CARS or LTTS operation and there should be no interference from unlicensed RF devices on the ground. It is anticipated that the developmental experiments with this system will result in obtaining an LTTS license for permanent operation in one or more of the bands under test.

The “stop buzzer” contact for this operation will be Mr. Randy Voorhees, the Downlink Program Manager at Courtney Aviation. His mobile number is 209-694-9656. All other communications can be addressed to the office of counsel for the applicant as follows:

Christopher D. Imlay  
Booth, Freret & Imlay, LLC  
14356 Cape May Road  
Silver Spring, Maryland 20904-6011  
(301) 384-5525 telephone  
(301) 384-6384 facsimile  
[chris@imlaylaw.com](mailto:chris@imlaylaw.com)